

Title (en)

METHOD AND APPARATUS FOR WATER TREATMENT USING SCREENS

Title (de)

VERFAHREN UND VORRICHTUNG ZUR WASSERBEHANDLUNG UNTER VERWENDUNG VON SIEBEN

Title (fr)

PROCÉDÉ ET APPAREIL DE TRAITEMENT DE L'EAU À L'AIDE DE GRILLES

Publication

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Application

EP 19215117 A 20130920

Priority

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- US 2013060962 W 20130920

Abstract (en)

An apparatus and method for selecting, retaining or bioaugmenting solids in an activated sludge process for improving wastewater treatment using screens. The screens can be used to separate and retain solids based on size, compressibility or shear resistance. The screens are used to separate and select slow growing organisms, faster settling organisms, or materials added to absorb, treat or remove constituents in the activated sludge process. A swapping screen arrangement provides another means of selecting various particles. The exposed shear rate or time, particle compression, or SRTs can be adjusted manually and/or automatically in response to detected readings from an instrument such as a spectrophotometer or other optical approaches to optimize selection of organisms.

IPC 8 full level

C02F 3/12 (2006.01); **B01D 36/00** (2006.01); **C02F 3/00** (2006.01); **C02F 3/30** (2006.01)

CPC (source: EP RU US)

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Y02E 50/30 (2013.01 - EP US); **Y02W 10/10** (2015.05 - EP US)

Citation (applicant)

- US 201261703844 P 20120921
- US 4541933 A 19850917 - ARMOLD CLARK W [US], et al
- US 5824222 A 19981020 - KEYSER GENE E [US], et al
- US 6814868 B2 20041109 - PHAGOOG DEONARINE [CA], et al
- US 7569147 B2 20090804 - CURTIS BETTY-ANN [US], et al
- US 6821425 B2 20041123 - VENOSA ALBERT D [US], et al
- US 3959124 A 19760525 - TCHOBANOGLOUS GEORGE
- US 5458779 A 19951017 - ODEGAARD HALLVARD [NO]
- US 7854843 B2 20101221 - PEHRSON RICHARD L [US], et al
- US 2011198284 A1 20110818 - NYHUIS GEERT [CH]

Citation (search report)

- [XD] US 7569147 B2 20090804 - CURTIS BETTY-ANN [US], et al
- [X] US 2011017664 A1 20110127 - CONNER WILLIAM G [SA], et al
- [X] EP 1595851 A1 20051116 - HITACHI PLANT ENG & CONSTR CO [JP]
- [X] WO 9424056 A1 19941027 - KHUDENKO BORIS M [US]
- [I] MICHAEL JOYCE ET AL: "Replacement of activated sludge secondary clarifiers by dynamic straining", ENVIRONMENTAL PROTECTION TECHNOLOGY SERIES, 1 January 1975 (1975-01-01), pages 1 - 76, XP055702950, Retrieved from the Internet <URL:<http://citenpl.internal.epo.org/wf/web/citenpl/citenpl.html>> [retrieved on 20200609]
- [X] SEN DIPANKAR ET AL: "Performance of fixed film media integrated in activated sludge reactors to enhance nitrogen removal", WATER SCIENCE AND TECHNOLOGY, vol. 30, no. 11, 1994, pages 13 - 24, XP002799323, ISSN: 0273-1223

Cited by

WO2023212761A1

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CN 110386663 B 20230321; EP 2897912 A1 20150729; EP 2897912 A4 20160615; EP 3699149 A1 20200826; IL 237691 A0 20150531;
IL 237691 B 20191128; IN 2753DEN2015 A 20150828; JP 2015533642 A 20151126; JP 6271559 B2 20180131; KR 102249604 B1 20210510;
KR 20150086239 A 20150727; MX 2015003645 A 20150925; MX 360360 B 20181030; RU 2015114778 A 20161110; RU 2666867 C2 20180912;
SG 11201502140T A 20150429; US 2014131273 A1 20140515; US 9802847 B2 20171031; WO 2014047459 A1 20140327;
ZA 201501742 B 20151223

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US 201314032952 A 20130920; AU 2013317919 A 20130920; BR 112015006444 A 20130920; CA 2884724 A 20130920;
CN 201380049244 A 20130920; CN 201910522368 A 20130920; EP 13839299 A 20130920; EP 19215117 A 20130920;
IL 23769115 A 20150312; IN 2753DEN2015 A 20150403; JP 2015533225 A 20130920; KR 20157010139 A 20130920;
MX 2015003645 A 20130920; RU 2015114778 A 20130920; SG 11201502140T A 20130920; US 2013060962 W 20130920;
US 201314033686 A 20130923; ZA 201501742 A 20150313